

REMARKS

Favorable reconsideration of this application, in light of the following discussion, is respectfully requested.

Claims 33-34, 36-44 and 46-50 are pending in the present application. Claims 33 and 42 are independent.

In the Official Action, claims 33-34, 36-44 and 46-50 were rejected under 35 U.S.C. § 102(b) as being anticipated by Tanizawa (EP 1063711, equivalent to U.S. Patent No. 7,402,838).

Briefly recapitulating, claim 33 is directed to

A light emitting diode (LED) comprising:
a first gallium nitride layer;
an $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ multi-layer formed over the first gallium nitride layer;
an active layer formed over the $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ multi-layer; and
a second gallium nitride layer formed over the active layer,
wherein the $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ multi-layer has a plurality of pits formed thereon.

Tanizawa describes a nitride semiconductor device with an active layer made of a multiple quantum well structure. However, contrary to the Official Action, Tanizawa does not disclose or suggest Applicant's claimed $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ multi-layer. That is, the cited n-side multi-film layer 6 of Tanizawa is an $\text{InGaN}/\underline{\text{GaN}}$ superlattice structure, and is not an $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ multi-layer.

Furthermore, as acknowledged by the Official Action, Tanizawa does not disclose or suggest Applicant's claimed $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ multi-layer *having a plurality of pits formed thereon*. The Official Action asserts that these pits are inherently present in the structure of

Tanizawa. To support the finding of inherency, the Official Action cites Applicant's own specification. Applicant traverses.

"The fact that a certain result may occur or be present in the prior art is not sufficient to establish inherency of that result or characteristic."¹ "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'"² To form the pits in Applicant's claimed invention, the $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ multi-layer is grown with H_2 being removed at first and second growth temperatures. Tanizawa does not disclose or suggest growing his $\text{InGaN}/\underline{\text{GaN}}$ superlattice structure with H_2 being removed at first and second growth temperatures. Thus, contrary to the Official Action, no pits are inherently formed on the $\text{InGaN}/\underline{\text{GaN}}$ superlattice of Tanizawa.

Applicant submits independent claim 42 patentably defines over Tanizawa for at least the reasons presented above relative to claim 33. Furthermore, contrary to the Official Action, Tanizawa fails to disclose or suggest "forming an $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ multi-layer above the N-type gallium nitride layer, the $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{In}_y\text{Ga}_{1-y}\text{N}$ multi-layer including *layers of first and second growth temperatures*." Tanizawa describes using low temperatures to group the buffer layers, but is silent about how the layers of the n-side multi-film layer 6. Thus, for another reason, claim 42 patentably defines over Tanizawa.

¹ *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1995, 1957 (Fed. Cir. 1993).

² *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

MPEP § 2131 notes that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See also MPEP § 2131.02. “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Because Tanizawa does not disclose or suggest all of the features recited in claims 33 and 42, Tanizawa does not anticipate the invention recited in claims 33 and 42, and all claims depending therefrom.

Conclusion

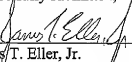
In view of the above amendment, Applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Michael E. Monaco, Reg. No. 52,041 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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